

A NEW METAL MARK (*CALEPHELIS*) FROM TEXAS (LEPIDOPTERA, RHIODINIDAE).

By W. S. McALPINE, Birmingham, Mich.

Since the discovery of *Calephelis muticum* from Michigan, published in the April, 1937, issue of this BULLETIN, the writer has been making a study of the genus *Calephelis*, as there seemed to be much confusion in identification in this genus among the leading museums in this country, as well as in the private collections. Whole-hearted cooperation by these museums and among private collectors has placed at the disposal of the writer considerable material for study.

My good friend, Dr. Geo. W. Rawson, a well-known Lepidopterist from Detroit, very kindly turned over such material as he had in his collection for study. Among his specimens was a small series which he had taken at Leon Springs, Bexar Co., Texas, in 1919. Leon Springs is located about eighteen miles northwest of San Antonio. After careful study and comparison with all known available types of this genus it appears that this series represents an undescribed species. The author proposes the name of *Calephelis rawsoni* for this species.

Calephelis rawsoni n. sp. (figs. 1 to 9 inc.).

Male: Expanse holotype 24.0 mm., average of 8 paratypes 24.5 mm., largest 25.0 mm., smallest 23.5 mm.

Upper Surface—Head: Top and eyes medium brown, front and palpi pale fulvous (tawny, reddish yellow approaching orange). Antenna black with white rings at joints. Dorsal surface of club black, ventral surface of club gray. Dorsal surface of thorax and abdomen fuscous (dark brown approaching black), sides of abdomen paler brown ventrally. Upper surface of wings dull reddish brown, inclined to chocolate brown in some specimens. In most of the male specimens there seems to be a slight smoky film over the upper surface of the wings, which is apparently caused by the lighter shade of brown at base of wing scales. This is not so pronounced as in *Calephelis wrighti* but is somewhat similar. There are darker brown scales along veins of both wings, and at base of wings and along costal and inner margins. On the basal half of both wings there is a series of dark brown linear markings which form four or five irregular transverse lines across the wings, which are more or less concentric with base. The most outward of these transverse lines is the heaviest and is composed

of more scalloped-like markings, particularly in the secondaries where they are also faintly doubled in the upper half. Preceding the most outward of these transverse lines there is some darker scaling, which, together with the transverse line, gives the appearance of a rather narrow not very noticeable transverse dark band across both wings. This band varies considerably in specimens, in some being fairly well defined, in others including the holotype, scarcely noticeable. Beyond the outer transverse line are two very fine silver metallic lines between which is a row of fairly prominent black dots. The metallic lines are margined with fuscous. The outer metallic line is more prominent, continuous, close to and equidistant from edge of the wing, while the inner metallic line is irregular, considerably exerted near the middle of the wings, particularly so in fore wings, and hardly discernible in places. Beyond the outer transverse line the ground color of the wings is somewhat lighter.

The fringe is pale brown faintly checkered with white at apex, inner angle and middle of fore wing. In one of the paratypes there was apparently no white checkering of fringes. As noted in wing venation drawings, the outer edge of fore wing is undulated.

Under Surface: The legs and under surface of wings, thorax and abdomen are of a fairly uniform fulvous color, although the basal part of wings and legs, thorax and abdomen are lighter and not so reddish as outer part of wings. The basal markings which correspond to the transverse lines of the upper surface are disconnected and fine, the outer line being slightly heavier.

The silver markings of the upper surface are repeated, but are considerably heavier and have no fuscous margins. The outer metallic line is practically continuous, while the metallic spots of the inner line are disconnected and most are inclined to be somewhat crescent-shaped. There are three very fine metallic markings along the costa preceding the inner metallic line. The dots between the two metallic lines are repeated on the underside.

Female: Expanse allotype 24.5 mm., expanse of paratype 21.0 mm. The paratype looks like a stunted specimen.

Similar to male in general markings. Upper surface of a more uniform, lighter reddish brown color, with more definite and heavier markings. The transverse dark band through middle of wings, which is fairly well pronounced in some male

specimens is not noticeable in the allotype or paratype. The smoky film which is noticeable over the upper surface of most of the male specimens is not very noticeable on the allotype or paratype. The primaries are more square cut and not so pointed as in the males.

The fringes are light brown with white checks at apex and inner angle of fore wings.

The under surface is similar in color to males with markings somewhat heavier.

Dr. Rawson took five specimens, three males and two females at Leon Springs, Texas. The dates of these specimens are Aug. 3rd and Aug. 7th, 1919.

According to Dr. Rawson they were all taken on vegetation along the sides of a stream at the bottom of a small gulch. The vegetation near the stream where specimens were taken, was grassy, with a mixture of ferns and other small plants which require moisture. The surrounding country is more or less flat and supports a sparse growth of scrub live oaks, junipers and a little mesquite with a ground cover of xerophytic grasses.

A search of museums has uncovered a half dozen more male specimens, two males from the Barnes collection in the U. S. National Museum, labelled Kerrville, Texas, with no other data. One male in the U. S. National Museum labelled Kerrville, Texas, H. Lacy collector. One male in the U. S. National Museum labelled Texas, B. Neumogen. This specimen was obtained from the Brooklyn Museum which formerly had the Neumogen collection. One male in The American Museum of Natural History labelled Kerrville, Texas, H. Lacy collector, July, 1908, acquisition No. 27,656. This specimen was in first-class condition and seemed quite typical, so was made the holotype. One male in The American Museum of Natural History labelled Kerrville, Texas, Nov., 1902, acquisition No. 27656. As noted all the definite locality labels, on the specimens uncovered at the U. S. National Museum and The American Museum of Natural History, indicate Kerrville, Texas, which is only about forty miles northwest of Leon Springs, so our present range for this species is confined to a very small area.

In general appearance it is easy to mistake small specimens of this butterfly for *Calephelis virginensis* or other closely related *Calephelis*, and it usually becomes necessary to make genitalic examination to be absolutely certain of identification, unless one is very familiar with the species. The male genitalia is readily separated from others in the genus in the United States, by the long, slender, pointed end of the upper anellus, which extends considerably be-

yond the end of the harpés and also by the heavy armature of the harpé as shown in the accompanying plate. A comparative study of male genitalia of some Mexican and Central American species available to the author does not disclose any exactly like it.

Genitalic slides were made of all the male paratypes, as there seemed to be some variation, particularly in weight of markings, the transverse dark band, and the shade of color and smoky film of the upper wing surface.

The species of this genus which seem to nearest resemble *rawsoni* are *virginensis* and *muticum* and to a lesser degree *borealis*.

Rawsoni is of about the same size as *muticum*, being slightly smaller than *borealis* and averages considerably larger than *virginensis*. All four species look very much alike in general color of the under side and the general markings are arranged quite similarly in *rawsoni*, *virginensis* and *muticum*. *Rawsoni* on both surfaces is not so heavily marked either with silver or other markings as *virginensis* or *muticum*. The color of the upper surface of male *rawsoni* is usually of a dull, slightly darker reddish brown than in *virginensis*, but the color of the females of these species is very similar. The upper surface of *muticum* is a rich mahogany color when fresh, while *borealis* is very dark with heavy fuscous scaling.

The outer transverse basal line of the secondaries of male *rawsoni* is scalloped. This does not occur in *muticum* and is usually not so well defined in *virginensis*.

On the under surface the markings of the inner silver line of male *rawsoni* are more crescent shaped (somewhat as in *borealis*) and of lighter weight than the same markings in *virginensis* and *muticum* which are heavy and square or roundish in shape.

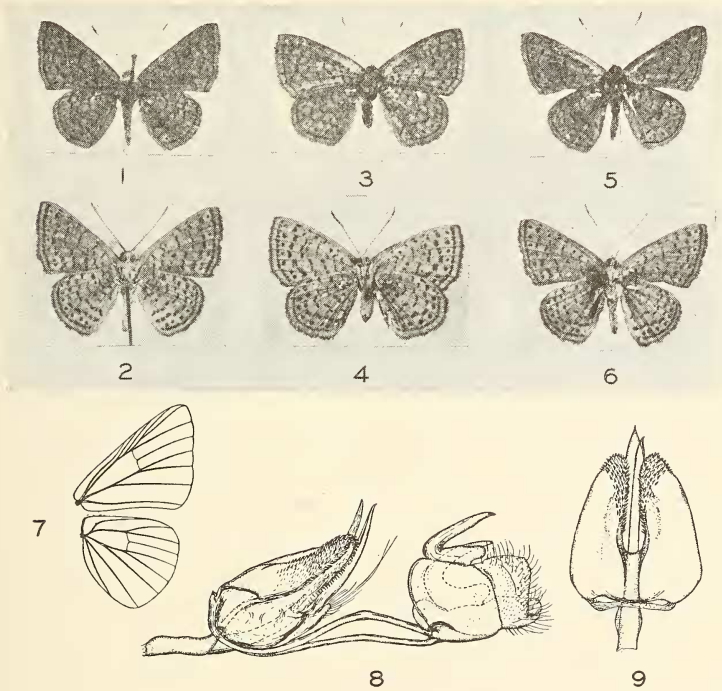
The fringe in *rawsoni* is usually quite noticeably checked with white, while in *virginensis* it is not checked, and in *muticum* is only rarely faintly checked.

The wing shape of male *rawsoni* is slightly undulated while this is not so with the other three species.

The male genitalia of all four species are distinct as can be noted by a comparison with the illustrations in the original description of *muticum* and the accompanying plate.

The two females were found by Dr. Rawson in company with the male paratypes and are assumed to be the females of this species as they have a general resemblance to the males, except the usual difference in shape of wings which is noted in species of this genus. They differ from the females of the other three species in shape of primaries and more definite checkering of fringes as well as in other respects.

The author is greatly indebted to Dr. J. F. Gates Clark and the U. S. National Museum for aid in making up genitalic slides and identification and loan of specimens, also to The American Museum of Natural History for loan of specimens, and the Carnegie and Field Museums for loan of specimens of allied species. Several private collectors have also very kindly furnished specimens of allied species for study and comparison, including Geo. P. Engelhardt, Frank Chermock and Cyril dos Passos.



EXPLANATION OF FIGURES.

Figures 1 to 6 inclusive, natural size.
 Photos by Allen Arnold, drawings by W. S. McAlpine.
 Figures 1 and 2, *Calephelis rawsoni* n. sp., upper and lower surface respectively ♂ holotype, Kerrville, Texas, July, 1908, H. Lacy, collector, placed in the American Museum of Natural History.
 Figures 3 and 4, *Calephelis rawsoni* n. sp., upper and lower surface respectively ♀ allotype, Leon Springs, Texas, Aug. 7, 1919, Dr. Geo. W. Rawson, collector, placed in the U. S. National Museum.
 Figure 7, wing venation.
 Figure 8, male genitalia.
 Figure 9, female genitalia.

Figures 5 and 6, *Calephelis rawsoni* n. sp., upper and lower surface respectively ♂ paratype No. 1, Leon Springs, Texas, Aug. 3, 1919, Dr. Geo. W. Rawson, collector, in the Collection of Dr. Rawson.

Figure 7, *Calephelis rawsoni* n. sp., wing venation of ♂ paratype No. 2, Kerrville, Texas, H. Lacy, collector, in U. S. National Museum.

Figure 8, *Calephelis rawsoni* n. sp., side view, genitalia of ♂ paratype.

Figure 9, *Calephelis rawsoni* n. sp., bottom view, genitalia of ♂ paratype with upper organs removed.

THE CHARLES SCHAEFFER COLLECTION.

Families of Coleoptera, as listed in Leng's Catalogue, donated by Cornell University from the Charles Schaeffer collection, by his children, Mrs. Cordt G. Rose and Mr. Charles L. Schaeffer:

HALIPLIDAE	HELMIDAE	MYCETOPHAGIDAE
GYRINIDAE	HETEROCERIDAE	LATHRIDIIDAE
HYDROPHILIDAE	DASCILLIDAE	MYCETAEIDAE
STAPHYLINIDAE	HELODIDAE	ENDOMYCHIDAE
MELYRIDAE	DERMESTIDAE	ALLECULIDAE
EURYSTETHIDAE	BYRRHIDAE	TENEBRIONIDAE
OTHNIIDAE	OSTOMIDAE	LAGRIIDAE
PEDILIDAE	NITIDULIDAE	MONOMMIDAE
ANTHICIDAE	RHIZOPHAGIDAE	PLATYPODIDAE
EUGLENIDAE	CRYPTOPHAGIDAE	SCOLYTIDAE

The following HOLOTYPES are included:

OSTOMIDAE

- Ostoma oregonensis* Schaeffer
- Temnochila peninsularis* Schaeffer
- Temnochila edentata* Schaeffer
- Tenebroides arizonensis* Schaeffer

NITIDULIDAE

- Nitidula nigra* Schaeffer

STAPHYLINIDAE

- Belonuchus schaefferi* Cooper

CHARLES E. PALM.